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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/818,715

03/27/2001

Kwok Pun Lee

US010071

1324

24737

7590

04/27/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

HUYNH, THU V

ART UNIT

PAPER NUMBER

2178

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/818,715	LEE ET AL.	
	Examiner	Art Unit	
	Thu V. Huynh	2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications: RCE filed on 02/08/06 to application filed on 03/27/2001.
2. Claims 1, 8-9 and 13 are amended. Claims 5 and 12 are canceled.
3. Claims 1-4, 6-11 and 13 are pending in the case. Claims 1 and 8 are independent claims.
4. Rejections in the previous office action have been withdrawn as necessitated by the consideration and amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
7. **Claims 1-4, 6-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being**

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unpatentable over Clunie (hereinafter Clunie1), “DICOM Structured Reporting”, copyright 2000, pages 7-13, 31, 237, 306-314, 325-344, in view of Ricker et al., US 2002/0049790 A1.

Regarding independent claim 1, Clunie1 teaches the steps of:

- mapping each DICOM attribute of a plurality of DICOM attributes in the DICOM document into a corresponding XML element of a plurality of XML elements (Clunie1, pages 308-309, 337-338, 342, 344; DICOM parser parses each DICOM attribute in a DICOM SR document; and transform the parsed DICOM SR document into XML document by directly mapping such attributes to corresponding XML elements, “every attribute of a DICOM encoding of the SR construct is transcoded into an equivalent XML tag. So for example, there is a <condeptname> tag corresponding to the DICOM Concept Name Code Sequence attribute”);
- outputting each XML element of the plurality of XML elements to the XML document, in a format that conforms to an XML document type-definition of the XML document (Clunie1, page 312, second paragraph from the bottom, “output from the XSL-T engine can be any form of text: it does not need to be HTML or XML; page 342, the paragraph before “Summary” section; page 343, the sixth triangle, “XSL Transformation (XSL-T) engines ... can produce any form of text-based output, including XML, HTML, PDF”; page 344, figure 53, “XSL-T Transformation Engine”; Clunie1 teaches outputting XML elements in the XML document to XML or HTML document using XSLT style sheet tailored to a DTD (document type definition)).

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Clunie1 teaches an XML document with or without its DTD (Clunie1, page 31, second paragraph; page 312, last paragraph). Clunie1 teaches one-to-one mapping, such as “every attribute of a DICOM encoding of the SR construct is transcoded into an equivalent XML tag. So for example, there is a <conceptname> tag corresponding to the DICOM Concept Name Code Sequence attribute” (Clunie1, page 309, second paragraph). Clunie1 teaches DTD may be used to specify a tag contains a tag to avoid of repeating of contents of code sequence (Clunie1, 309, second paragraph). However, Clunie1 does not explicitly disclose the mapping is independent of the XML DTD.

Ricker teaches transforming a document into XML document using a data dictionary for mapping, wherein the mapping is independent of the XML document-type-definition of the XML document (Ricker, [0010], [0075]; mapping EDI tag to corresponding XML tag using data dictionary to avoid rewriting of the DTD of the XML document when changing the XML document).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have combined Ricker’s using data dictionary mapping into Clunie1’s DTD mapping to provide a data dictionary for mapping DICOM tags and XML tags, since the combination would have provided different mapping implementations, such as using a data dictionary or DTD.

Regarding claim 2, which is dependent on claim 1, Clunie1 teaches formatting the XML element via one or more XSLT templates to conform to the XML document-type-definition (Clunie1, page 312, “XML and Presentation” section, third paragraph; pages 340-341; 342; page

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343, the sixth triangle, “XSL Transformation (XSL-T) engines ... can produce any form of text-based output, including XML, HTML, PDF”; page 344, “XSL-T Transformation Engine”; Clunie1 teaches XSLT style sheet is used to format the XML elements of the XML document or the XML Simulated Events into XML or HTML document that conforms to XML or HTML DTD).

Regarding claim 3, which is dependent on claim 2, Clunie1 teaches formatting of the XML element is via an XSLT engine (Clunie1, pages 344; “XSL-T Transformation Engine”).

Regarding claim 4, which is dependent on claim 2, Clunie1 teaches one or more XSLT templates correspond to one or more DICOM Information Entities (Clunie1, pages 331, DICOM document includes patient information; applying XSLT style sheet to format the XML document or XML Simulated Events, wherein the XML document includes patient information).

Regarding claim 6, which is dependent on claim 1, Clunie1 teaches:

- parsing each DICOM attribute to segregate a DICOM data type, and a DICOM codeID from the DICOM attribute (Clunie1, pages 308-309; page 337-338, “An Alternative Approach –Event Streams” section; page 342, lines 8-21; in order to convert the DICOM attribute, DICOM SR parser parses each DICOM attribute to extract data type and codeID, such as “PNAME” type and code ID “209069”), and
- wherein the mapping includes (Clunie1, pages 308-309; 337; 344; mapping DICOM attributes to XML elements to build XML document or XML Simulated Events):

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- assigning the DICOM codeID to a first attribute of the corresponding XML element (Clunie1, 308-310, 337-338, assigning “209069” to attribute “codevalue” (see page 310, lines 1-13; content of a tag is attribute of that tag; or assigning “209069” to attribute “V” of “codedentry”(see Clunie1, page 342, lines 8-21; in this case “ ” is assigned to “V”);
- mapping the DICOM data type to a corresponding value type of the corresponding XML element (Clunie1, pages 308; mapping PNAME to value type PNAME of XML element “<valuetype>”); and
- assigning the corresponding value type to a second attribute of the corresponding XML element (Clunie1, page 310, lines 1-13, content of a tag is attribute of that tag; assigning “PNAME” to attribute “valuetype”).

Regarding dependent claim 7, which is dependent on claim 6, Clunie1 teaches parsing each DICOM attribute to segregate a DICOM attribute value (Clunie1, page 342, lines 8; parsing each DICOM attribute to extract DICOM attribute value, such as Display meaning “Description of procedure” and wherein the mapping further includes assigning the DICOM attribute value to a third attribute of the corresponding XML element (Clunie1, page 342, lines 8-21; assigning the “Description of procedure” into “DN” attribute of XML element).

Regarding independent claim 8, Clunie1 teaches a system comprises:

- a DICOM parser that is configured to provide a plurality of DICOM attributes from a DICOM data file (Clunie1, pages 308-309; 337-338; 342, lines 8-21; DICOM SR

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parser is used to parse a DICOM document in order to convert the DICOM document to XML document or XML Simulated Events); and

- an XML formatter that is configured to provide a plurality of XML elements corresponding to the plurality of DICOM attributes (Clunie, pages 308-309; 340-342; 344; XSLT uses XSL templates to format XML document or XML events into XML, HTML, PDF, etc. output, wherein HTML or XML output has HTML or XML elements respectively corresponding the DICOM attributes); and
- an XML builder operably coupled between the DICOM parser and the XML formatter, said builder being configured to effect a direct mapping of each DICOM attribute of the plurality of DICOM attributes into a corresponding XML element of the plurality of XML elements (Clunie1, pages 342, lines 8-21; page 344, figure 53, Clunie-1 teaches “DICOM Encoded SR” is parsed by DICOM SR parser to extract DICOM attributes. After parsing, the parsed DICOM Encoded SR is provided to build “XML Simulated events” by mapping every attribute of the parsed DICOM Encoded SR into an equivalent XML element tag. After mapping (building the XML Simulated events) or XML document, the XML Simulated events are provide to an XSLT Transform engine to format the XML Simulated events into XML or HTML document for displaying. Therefore, Clunie1 teaches XML builder (mapping function) coupled between the DICOM parser and the XML formatter (XSLT) for mapping).

Clunie1 teaches an XML document with or without its DTD (Clunie1, page 31, second paragraph; page 312, last paragraph). Clunie1 teaches one-to-one mapping, such as “every

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attribute of a DICOM encoding of the SR construct is transcoded into an equivalent XML tag.

So for example, there is a <conceptname> tag corresponding to the DICOM Concept Name Code Sequence attribute” (Clunie1, page 309, second paragraph). Clunie1 teaches DTD may be used to specify a tag contains a tag to avoid of repeating of contents of code sequence (Clunie1, 309, second paragraph). However, Clunie1 does not explicitly disclose the mapping is independent of the XML DTD.

Ricker teaches transforming a document into XML document using a data dictionary for mapping, wherein the mapping is independent of the XML document-type-definition of the XML document (Ricker, [0010], [0075]; mapping EDI tag to corresponding XML tag using data dictionary to a void rewriting of the DTD of the XML document when changing the XML document).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have combined Ricker’s using data dictionary mapping into Clunie1’s DTD mapping to provide a data dictionary for mapping DICOM tags and XML tags, since the combination would have provided different mapping implementations, such as using a data dictionary or DTD.

Regarding dependent claim 9, which is dependent on claim 8, Clunie1 teaches the XML formatter is configured to provide the plurality of XML elements in a format that conforms to the XML document-type-definition of the XML document (Clunie1, page 341; page 343, the sixth triangle; outputting XML elements to XML or HTML document using XSLT style sheet tailored to the XML DTD or HTML DTD of the XML or HTML output document).

Regarding dependent claim 10, which is dependent on claim 9, Clunie1 teaches wherein the XML formatter includes an XSLT engine that is configured to provide the plurality of XML elements based on one or more XSLT stylesheet templates that conform to the XML document-type-definition (Clunie1, page 341; page 343, the sixth triangle; XSLT engine uses XSLT stylesheets to output XML or HTML document, wherein the XSLT style sheet tailored to the XML DTD or HTML DTD of the XML or HTML output document).

Regarding dependent claim 11, which is dependent on claim 10, Clunie1 teaches wherein one or more XSLT stylesheet templates correspond to one or more DICOM Information Entities (Clunie1, page 331, “Display A”, “Display B”; page 340, “XSL-T” section – 342, line 2; and applying XSLT template is used to format the XML document or Simulated Events to XML or HTML output document, wherein the output document includes patient information).

Regarding dependent claim 13, which is dependent on claim 12, Clunie specifically teaches:

- the DICOM parser is configured to parse each DICOM attribute to provide a DICOM data type, and a DICOM codeID from the DICOM attribute (Clunie1, pages 308-309; page 337-338, “An Alternative Approach –Event Streams” section; page 342, lines 8-21; in order to convert the DICOM attribute, DICOM SR parser parses each DICOM attribute to extract data type and codeID, such as “PNAME” type and code ID “209069”), and

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- the XML builder is configured to (Clunie1, pages 308-309; 337; 344; building XML document or XML Simulated Events):
 - assigning the DICOM codeID to a first attribute of the corresponding XML element (Clunie1, 308-310, 337-338, assigning “209069” to attribute “codevalue” (see page 310, lines 1-13; content of a tag is attribute of that tag); or assigning “209069” to attribute “V” of “codedentry”(see Clunie1; page 342, lines 8-21; in this case “ ” is assigned to “V”);
 - mapping the DICOM data type to a corresponding value type of the corresponding XML element (Clunie1, pages 308; mapping PNAME to value type PNAME of XML element “<valuetype>”); and
 - assigning the corresponding value type to a second attribute of the corresponding XML element (Clunie1, page 310, lines 1-13, changing content of a tag to attribute of that tag; assigning “PNAME” to attribute “valuetype”).

Regarding claim 14, which is dependent on claim 13, Clunie1 teaches the DICOM parser is further configured to parse each DICOM attribute to provide a DICOM attribute value (Clunie1, pages 308-309; 341-342, section “Using XSL-T with DICOM SR”; DICOM SR parser is used to parse a DICOM document in order to convert the DICOM document to XML document); and the XML builder is further configured to assign the DICOM attribute value to a third attribute of the corresponding XML element (Clunie1, page 308, assigning the DICOM attribute value “Observer” to attribute “codemeaning” (see Clunie1; page 310, lines 1-13;

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content of a tag is attribute of that tag); page342; assigning the “Description of procedure” into “DN” attribute of XML element).

Response to Arguments

8. Applicant's arguments filed on 02/08/06 have been fully considered but they are not persuasive.

Applicants argue that “Clunie does not teach or suggest an XML builder coupled between the DICOM parser and the XML formatter” (Remarks, page 9, second paragraph).

However, Clunie1 teaches such limitation as explained in the rejection above.

Applicants argue with respect to claim 1 that Clunie1 does not teach “the particular arrangement of the XML builder ... an XML builder that is configured to effect a direct mapping of each DICOM attribute into a corresponding XML element independent of the XML document-type-definition” (Remarks, page 10, first paragraph).

In page 344, figure 53, Clunie-1 teaches “DICOM Encoded SR” is parsed by DICOM parser to extract DICOM attributes. After parsing, the parsed DICOM Encoded SR is used to build “XML Simulated events” or XML document (Clunie1, page 344) by mapping every attribute of the parsed DICOM Encoded SR into an equivalent XML element tag. After mapping (building the XML Simulated events or XML document), the XML Simulated events or XML document are provided to an XSLT Transform engine to format the XML Simulated events or XML document into XML, HTML, PDF, etc. document for displaying. Therefore, Clunie1

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teaches XML builder (for mapping each DICOM attribute to a corresponding XML element) coupled between the DICOM parser and the XML formatter (XSLT) as claimed.

Clunie1 does not explicitly disclose the mapping is independent of the XML document-type-definition. However, the combination of Clunie1 and Ricker teaches such limitation as explained in the rejection above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Binding et al., US 7,024,413 B2, filed 07/01, teaches method of externalizing legacy database in ASN.1 formatted data into XML format.

Cochran et al., US 2002/0087971 A1, filed 01/01, teaches communication protocol for content on demand system with callback time.

Yalcinalp, US 6,507,857 B1, filed 03/00, teaches extending the capabilities of an XSL stylesheet to include components for content transformation.

Fujikawa, 2002/0052899 A1, filed 03/01, teaches recoding medium storing document construct program.

Torii et al., "The Information management system based on XML bidirectional transformation technology", pages 341-348, issued 03/2002.

David Clunie, "DICOM SR Implementation" from "DICOM Structured Reporting: Implementation Experience (NEMA SR Implementers Workshop 2001)", which is http://www.dclunie.com/papers/sr20010608_dac.pdf, pages 1-38.

Xu et al., "Using XML in a generic model of mediators", May 1999, pages 1-14.

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Shobowale, "SGML, XML and the Document-Centered Approach to Electronic Medical Records", ASIS Bulletin, 11/98, pages 1-7.

Wang et al., "Potential Use of Extensible Markup Language for Radiology Reporting: A Tutorial", RSNA copyright 2000, pages 1-11.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu V. Huynh whose telephone number is (571) 272-4126. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen S. Hong can be reached on (571) 272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thu V. Huynh
April 17, 2006

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